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(Name)

(Signature)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: David A. Strickler et al.	Group Art Unit 1774
Serial No. 09/625,921	Examiner T. Dicus
Filed: July 26, 2000	Attorney Docket 1-14455
For: GLASS ARTICLE HAVING A SOLAR CONTROL COATING	

August 24, 2004

Mail Stop Appeal Brief – Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Honorable Sir:

This brief is in furtherance of the Notice of Appeal, which was timely filed in this case on June 24, 2004. This Brief is being filed in triplicate under the provisions of 37 C.F.R. 1.192.

The fees required under 37 C.F.R. 1.17(f) are being submitted herewith.

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1. Real Party in Interest

The real party in interest is Libbey-Owens-Ford Corp. and Pilkington plc. This application has been assigned jointly to Libbey-Owens-Ford Corp. and Pilkington plc. The assignment was recorded April 16, 2002, reel 012825, frame 0254.

2. Related Appeals and Interferences

There is no known related appeal or interference, which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

3. Status of Claims

The application was filed on July 26, 2000 with 28 claims. The claims were grouped as independent claim 1 with dependent claims 2-21; independent claim 22 with dependent claims 23-25; and independent claim 26, with dependent claims 27 and 28.

On April 25, 2002, an Office Action was issued rejecting claims 1-21 under 35 USC §103 as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al. Claims 22-25 were rejected under a separate rejection as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al. Claims 26-28 were also rejected under a separate rejection as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al.

In response to this action, a response was filed, with a two month extension of time, on September 3, 2002. In this response, only arguments were presented. The claims were not

amended. On November 22, 2002, another Office Action was issued, which action was made final by the Examiner. This action rejected all of Applicant's responses, and maintained the rejections from the earlier Office Action.

On January 14, 2003, an after final response was filed to this action. No claim amendments were presented.

Subsequent to this response, the Examiner issued another Examiner's action on February 26, 2003. In this action, the previous rejections were withdrawn. Instead, the Examiner rejected claims 1-5, 8-10 and 12-16 under 35 USC § 102(e) as being anticipated by US 6,231,971 to Terneu et al. Claim 17 was rejected under 35 USC §103 as being unpatentable over US 6,231,971 to Terneu et al. Claims 1-21 were rejected under 35 USC §103 as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al. Claims 22-25 were rejected under a separate rejection as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al. Claims 26-28 were also rejected under a separate rejection as being unpatentable over US 5,780,149 to McCurdy et al. in view of US 6,231,971 to Terneu et al.

In response to this action, applicants filed an amendment, with three month extension, on August 26, 2003. In this amendment, claims 5 and 6 were amended to correct typographical errors occurring in these claims.

On November 20, 2003, the Examiner issued another non-final Office Action. In this action, the Examiner withdrew the rejections based on Terneu alone. Claims 24 and 25 were rejected under 35 USC §112, first paragraph, for a non-enabling disclosure. Claims 1-4 and 8-

16 were rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of Terneu et al. Claims 17-21 were rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of Terneu et al. Claims 1-21 were rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of US 6,218,018 to McKown et al. Claims 22-23 were also rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of US 6,218,018 to McKown et al. Claims 24-25 were also rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of US 6,218,018 to McKown et al. Claims 26-28 were also rejected under 35 USC §103 as being unpatentable over McCurdy et al. in view of US 6,218,018 to McKown et al.

In response to this action, Applicants filed an amendment on February 20, 2004. No claims were amended in this amendment.

In response to the amendment of February 20, the Examiner issued a final Office Action on May 19, 2004. In this action, the Examiner withdrew the rejection of claims 24 and 25 under 35 USC §112, first paragraph. The Examiner maintained the remaining rejections.

In light of the final rejection Office Action, applicants filed a Notice of Appeal in this case on June 24, 2004, appealing the final rejection of claims 1-28.

Thus, the status of each of the claims is as follows:

1. Claims cancelled: None
2. Claims withdrawn from consideration but not cancelled: None
3. Claims pending: 1-28
4. Claims allowed: None

5. Claims rejected: 1-28

The claims on appeal are claims 1-28. A copy of the claims on file is submitted in the attached Appendix.

4. Status of Amendments

No amendment was filed subsequent to the final rejection.

5. Summary of the Invention

The present invention, as defined by independent claim 1, defines a coated glass article comprising a glass substrate, a coating of antimony doped tin oxide deposited on and adhering to said glass substrate. An additional coating of fluorine doped tin oxide is deposited on and adheres to the first coating. This is defined, for example, in lines 5-9 of the abstract of the disclosure, and on lines 13-29 of page 3 of the disclosure. The thicknesses of the coatings are selected to provide a selectivity of thirteen or more, which is also shown in lines 13-29 of page 3 of the disclosure. This embodiment is shown in Figure 2 of the application with substrate 36, antimony doped tin oxide layer 41 and fluorine doped tin oxide layer 42.

Independent claim 22 defines an insulating glass unit. The insulating glass unit comprises first and second glass substrates with a multilayer coating stack deposited on the second glass substrate. A first coating of antimony doped tin oxide is deposited on the surface with a second coating of fluorine doped tin oxide deposited on and adhering to the first coating. The second glass substrate exhibits a difference between visible light transmittance

and total solar energy transmittance of thirteen or more. This embodiment is depicted in Figure 3 of the application.

Claim 26 defines a coated glass article. The article comprises a glass substrate with a coating of antimony doped tin oxide deposited on and adhering to said glass substrate. The coating of antimony doped tin oxide has a thickness of between about 1400 and 1900 Angstroms. This is shown in the specification on page 7, lines 8-10. A coating of fluorine doped tin oxide is deposited on and adheres to the coating of antimony doped tin oxide and has a thickness of between about 2200 and 3500 Angstroms. This thickness is shown on page 7, line 31- page 8, line 2. The coated glass article exhibits a difference between visible light transmittance (Illuminant C) and total solar energy transmittance, integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, to provide a selectivity of 13 or more. This embodiment is also depicted in Figure 2 of the application as glass substrate 36, antimony doped tin oxide layer 41 and fluorine doped tin oxide layer 42.

6. Issue(s)

The issues for appeal are:

a. whether Claims 1-4, 8-16 and 17-21 are unpatentable under 35 USC §103 over McCurdy et al. in view of Terneu et al.;

b. whether Claims 1-21 are unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.;

c. whether Claims 22-23 and 24-25 are unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.; and

d. whether Claims 26-28 are unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.

7. Grouping of Claims

The claims 1-21, rejected under 35 USC §103 over the references, stand or fall together. The claims 22-25, rejected under 35 USC §103 over the references, stand or fall together. The claims 26-28, rejected under 35 USC §103 over the references, stand or fall together.

8. Brief Summary of Applied References

a. US 5,780,149 to McCurdy et al.

McCurdy et al. discloses a solar control glass article for architectural windows. The article includes a glass substrate with an iridescence suppressing interlayer deposited on the substrate. First and second transparent coatings are deposited on the iridescence suppressing interlayer.

The McCurdy reference teaches that the solar control properties of the glass article are achieved by depositing two distinct layers which essentially function as a single layer in terms of visible light transmittance, but provide interference in the IR range, thus allowing a much greater transmission of visible light than of light in the IR spectrum. This is how the

McCurdy reference accomplishes its intended purpose. To achieve this goal, coatings are selected which have similar refractive indices in the visible range, and refractive indices which are less similar in the near IR region. This allows the glass to reject energy in the near IR region while allowing a greater transmission of visible light.

b. US 6,231,971 to Terneu et al.

Terneu et al discloses a glazing panel having a solar factor of less than 70%. A glass sheet has at least two coating layers deposited thereupon. The first layer comprises tin and antimony oxides. The second layer is tin oxide doped with fluorine.

c. US 6,218,018 to McKown et al.

McKown et al. discloses a solar control glass that has acceptable visible light transmission, absorbs near infrared light and reflects midrange infrared light. The glass article has a solar energy absorbing layer comprising in oxide with a dopant such as antimony, and a low emissivity layer comprising tin oxide doped with a material such as fluorine or phosphorous. McKown also proposes a possible iridescence suppressing layer or layers.

9. Argument

a. Rejection of Claims 1-4, 8-16 and 17-21 as being unpatentable under 35 USC §103 over McCurdy et al. in view of Terneu et al.

The Examiner has acknowledged that McCurdy teaches a coated glass article comprising a 3 mm thick substrate with first and second coatings, one of which coatings is an antimony doped tin oxide coating, wherein the glass article exhibits a selectivity of 10 or

greater. The Examiner acknowledges that McCurdy is silent as to the second coating being fluorine doped tin oxide deposited on and adhering to the coating of antimony doped tin oxide. The Examiner attests that the Terneu reference discloses that the inclusion of a fluorine doped tin oxide layer on an antimony doped layer provides a low solar factor and emissivity. The Examiner therefore asserts that it would have been obvious to one skilled in the art to replace the second layer with a fluorine doped tin oxide layer.

This rejection under USC §103 is based on modifying the McCurdy reference by either the Terneu reference. As previously asserted in applicants' responses to the previous office action, applicants continue to assert that it is improper to alter the McCurdy reference as done by the Examiner.

As stated above, the McCurdy reference, which teaches a solar control glass article, teaches that the solar control properties of the glass article are achieved by depositing two distinct layers which essentially function as a single layer in terms of visible light transmittance, but provide interference in the IR range, thus allowing a much greater transmission of visible light than of light in the IR spectrum. This is how the McCurdy reference accomplishes its intended purpose.

This is borne out by the following analysis of McCurdy. The McCurdy reference discloses a glass article having a solar control coating for architectural windows. The article includes a glass substrate and an iridescence suppressing interlayer deposited on and adhering to the surface of the glass substrate. The article further comprises first and second transparent coatings deposited on the iridescence suppressing interlayer. Applicants again note that

McCurdy ***requires*** that the first and second transparent coatings are chosen such that the difference in the refractive indices of the coatings in the near infrared region are greater than the difference of the refractive indices of the coatings in the visible region. (See, for example, McCurdy column 3, lines 9-18 and column 5, lines 18-34.) The selection results in an architectural glazing which rejects solar energy in the near infrared region while permitting the transmittance of a high degree of visible light. **Applicants assert that the selection of the coatings based on these criteria is *essential to the stated purpose* of the McCurdy reference.**

McCurdy describes his invention as follows:

> In accordance with the present invention, there is provided a novel glass article useful for producing coated, heat reducing glass for architectural windows. The coated article includes a glass substrate, *an iridescence-suppressing interlayer* deposited on and adhering to the surface of the glass substrate, at least *a first transparent coating* deposited on and adhering to the surface of the iridescence-suppressing coating, and at least *a second transparent coating* deposited on and adhering to the surface of the first transparent coating. The use of the present inventive article in architectural glazings results in a glazing that rejects solar energy while permitting the transmittance of a high degree of visible light.
> The specific coating stack on a clear glass substrate provides an iridescence free coated article having a *high visible light transmittance and a reduced total solar energy transmittance.*
> Column 2, lines 45-61, (emphasis added.)

McCurdy goes on to state:

> The present invention utilizes at least a first transparent coating and a second transparent coating that have a difference in refractive indices in the near infrared region greater than a difference in refractive indices in the visible light region. The difference in refractive indices in the near infrared region provides an interface that serves to reflect near infrared radiation. The similar refractive

> indices in the visible region permits the transmittance of a high degree of visible light. The attenuation of near infrared energy results in a coated article having a reduced solar energy transmittance.
> Column 3, lines 28-31.

Thus, the stated function of the McCurdy reference is to produce an architectural glass with energy transmission in the visible range greater than energy transmission in the IR range. This is accomplished by depositing first and second coatings on an iridescence suppressing interlayer on a glass substrate, which coatings are designed to provide optical interference in the near IR spectrum, and to provide relatively less optical interference in the visible spectrum. This is done by utilizing layers having refractive indices which are generally similar in the visible spectrum and which differ in the infrared spectrum.

Regarding these refractive indices, McCurdy notes, in column 3, lines 18-25, that:

> The first transparent coating is **generally a doped metal oxide, a doped mixed metal oxide, or metal nitride**. The second transparent coating is **generally a metal oxide or mixed oxide with silica**. The selection of the first and second transparent coatings is made in accordance with prescribed refractive indices to produce the desired transmittance properties. The noted coatings may also possess a low emissivity to minimize heat gain in an architectural glazing.

Thus, the function of the McCurdy reference is accomplished by depositing an iridescence suppressing interlayer on a substrate, followed by a doped metal or mixed metal oxide, followed by an undoped layer (of metal oxide).

In contrast, the refractive indices of SnO2:F and SnO2:Sb are very similar in both the visible and in the near infrared regions. This is in contrast to the refractive index of undoped tin oxide which is similar in the visible range to these doped tin oxides but differs in the

infrared range. Applicants have previously presented evidence showing the refractive indices of these materials, and how they compare and contrast in the visible and near infrared regions.

Based on the forgoing, the inclusion, in the McCurdy reference, of a fluorine doped tin oxide layer adjacent to the antimony doped tin oxide layer would not be obvious to one skilled in the art, as this would be contrary to the purpose of the McCurdy reference. In fact, as stated previously, the inclusion of such a layer would render the McCurdy reference inoperable for its intended purpose, that is to allow the transmission of visible light, while reducing the transmission of near infrared radiation.

The Examiner again opines in the final Office Action that applicants "continual allegation" that "the visible spectrum and spectral transmittances of McCurdy, the selection of the coatings of McCurdy, are somehow essential to the stated purpose of the McCurdy reference and different from the instant application, is not a persuasive argument." Applicants agree with the Examiner that the McCurdy reference and the present invention each envision a solar control glass article, but only insofar as that is a *goal* of each of the inventions. The McCurdy reference and the present invention differ greatly in how that goal is achieved. One skilled in the art of glass coatings would, from reading the McCurdy reference, understand that this reference functions by interference in the IR spectrum and allowing light in the visible spectrum to be transmitted.

The Examiner continues to assert that one skilled in the art would utilize the fluorine doped tin oxide of either Terneu or McKown but applicants again submit that this is not at all the case. One skilled in the art of glass coatings would understand how the McCurdy

reference is designed to function. One skilled in the art would recognize that substitution of a doped tin oxide layer adjacent to the antimony doped tin oxide layer would prevent the favorable confluence of optical properties that the inventors achieved in McCurdy. One skilled in the art would realize that *modifying the McCurdy reference as suggested by the Examiner would prevent the McCurdy reference from functioning as described therein.* Further, one skilled in the art would have no motivation to add a doped tin oxide layer to the McCurdy reference as one so skilled would anticipate that the favorable confluence of optical properties described by McCurdy *would not occur if modified as suggested by the Examiner.*

Applicants have argued that the teachings *of in re Gordon* prevent the modification of the McCurdy reference as suggested by the Examiner. The Examiner states that applicants' reliance on *in re Gordon* is incorrect, because the prior art does not teach away from any modification. Applicants respectfully disagree with this assertion of the Examiner. As explained above, the McCurdy reference functions by placing layers with differing optical properties in the infrared and visible spectra next to each other; thus providing higher transmission in the visible spectrum and more interference (thus less transmission) in the infrared spectrum. This is how the claimed and defined function of McCurdy, as a solar control glass, operates. The Examiner also states that this purpose of McCurdy is of no consequence as the rejection was made over a combination of McCurdy and Terneu. Applicants, to the contrary, assert that this is the heart of the issue at hand, as the modification of the McCurdy reference in light of Terneu, would thwart the stated function of the McCurdy reference.

It is thus respectfully submitted that the teaching of *In re Gordon* is directly applicable to the present application. Adding the fluorine doped tin oxide layer of Terneu or McKown to the invention of McCurdy would render McCurdy inoperative for its stated purpose, which is to maximize the transmission of visible light while blocking near infrared radiation by utilizing a pair of coatings that have similar refractive indices in the visible range and differing refractive indices in the near infrared region. Thus, not only would one skilled in the art have no motivation to combine the references, such combination is improper, and against well established law.

Further, in light of the above discussion, McCurdy teaches away from its combination with either Terneu. McCurdy, as stated above, requires a doped metal oxide layer adjacent an undoped metal oxide layer, the layers being selected for the optical properties that they provide. One skilled in the art of coatings on glass would not look to the fluorine doped tin oxide layer of Terneu to modify the McCurdy reference, as this is specifically taught away from.

Based upon the above, it is submitted that the combination of McCurdy and Terneu is improper and should be withdrawn. Thus, independent claim 1 and the claims dependent therefrom are respectfully submitted to be allowable over McCurdy in view of Terneu.

b. Rejection of Claims 1-21 as being unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.

Claims 1-21 were rejected under 35 USC §103 as being unpatentable over McCurdy in

view of McKown. The Examiner notes that McKown teaches various embodiments of a solar control coated glass. McKown notes that the inclusion of a fluorine doped tin oxide layer on an antimony doped tin oxide layer provides a solar control glass with a neutral blue color. The Examiner then avers that it would be obvious to one having ordinary skill in the art to replace the second layer with a fluorine doped tin oxide layer in order to have a solar control glass with a neutral-blue color.

The analysis of the McCurdy reference applies as shown above with respect to the rejection under 35 USC §103 as being unpatentable over McCurdy in view of Terneu above (in section a). McCurdy utilizes a doped metal oxide layer followed by an undoped metal oxide layer and another doped metal oxide layer. The differing refractive indices of these materials are essential to achieve the desired results of McCurdy by the mechanism shown therein. One skilled in the art of coatings fore architectural glazings would not be motivated to modify the McCurdy reference in a manner inconsistent with that required by the McCurdy reference. Further, even if one were motivated to modify the McCurdy reference in that manner, established law forbids the modification of a primary reference in such a manner to destroy the functionality of that reference.

The McKown reference adds nothing beyond what was shown in the Terneu reference as discussed above. The McKown reference shows a glass substrate, coated by a near IR reflecting film, coated by a low emissivity film (or, showing the films in the reverse order). The Examiner uses the juxtaposition of these two layers to propose modifying the McCurdy reference to place these layers the two doped metal oxide layers adjacent one another.

The analysis discussed above is believed to equally apply to this reference. It would be improper to modify the McCurdy reference as suggested by the Examiner (*in re Gordon*, as discussed above). Further, even if this modification were not improper, one skilled in the art would certainly lack the motivation to modify McCurdy in such a manner. For McCurdy to function, as defined therein, coatings with refractive indices that are more similar in the visible region than they are in the near infrared region must be applied adjacent to each other. Optical interference in the near IR region reduces the transmission of IR light (resulting in the solar control property) while permitting the maximum transmission of visible light. Modifying the McCurdy reference as suggested herein is improper, and the rejection of claims 1-21 over McCurdy in view of McKown is improper and should be reversed.

c. Rejection of Claims 22-23 and 24-25 as being unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.

Present claim 22 provides an insulating glass unit. The unit comprises a first glass substrate and a second glass substrate having an inner surface and an outer surface. The second glass substrate is secured to the first glass substrate in a spaced apart relationship with the inner surface facing the first glass substrate. A multilayer coating stack is deposited on and adhered to the inner surface of the second glass substrate. The multilayer coating stack comprises a coating of antimony doped tin oxide deposited on and adhering to the inner surface, the coating of antimony doped tin oxide having a thickness of between about 1400 and 1900 Angstroms, and a coating of fluorine doped tin oxide deposited on and adhering to

the coating of antimony doped tin oxide, wherein the coating of fluorine doped tin oxide has a thickness of between about 2200 and 3500 Angstroms. The multilayer coating being such that the second glass substrate exhibits a difference between visible light transmittance (Illuminant C) and total solar energy transmittance, integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, of 13 or more.

This claim is very similar to claim 1 in the claimed coating stack, but adds a second glass substrate secured to the first glass substrate in a spaced apart relationship, and provides thicknesses for the coating layers. Therefore, it is respectfully submitted that the above arguments are applicable against the rejection of claims 22-25 under 35 USC §103 as being unpatentable over McCurdy in view of McKown. It is thus respectfully requested that the rejection of claim 22, and the claims dependent thereon, be overturned, for the reasons stated above.

d. Rejection of Claims 26-28 as being unpatentable under 35 USC §103 over McCurdy et al. in view of US 6,218,018 to McKown et al.

Claim 26 defines a coated glass article. The article comprises a glass substrate with a coating of antimony doped tin oxide deposited on and adhering to said glass substrate. The coating of antimony doped tin oxide has a thickness of between about 1400 and 1900 Angstroms. A coating of fluorine doped tin oxide is deposited on and adheres to the coating of antimony doped tin oxide and has a thickness of between about 2200 and 3500 Angstroms. The coated glass article exhibits a difference between visible light transmittance (Illuminant

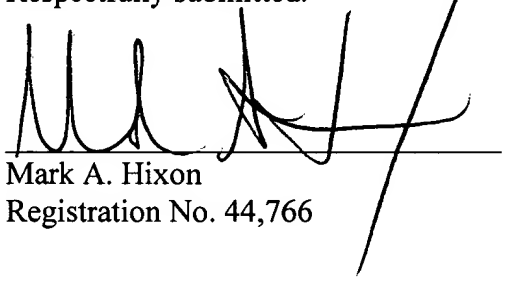
C) and total solar energy transmittance, integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, to provide a selectivity of 13 or more

Again, this claim is very similar to that which was claimed in claim 1 above, adding the limitations to the thicknesses of the antimony doped and fluorine doped layers. Therefore, it is respectfully submitted that the above arguments are applicable against the rejection of claims 26-28 under 35 USC §103 as being unpatentable over McCurdy in view of McKown. It is thus respectfully requested that the rejection of claim 26, and the claims dependent thereon, be overturned, for the reasons stated above.

CONCLUSION

For the foregoing reasons, it is submitted that the claims on appeal each define subject matter which is novel and would not have been obvious to one of ordinary skill in the art at the time the invention was made. Accordingly, all of the claims on appeal are believed to be entitled to allowance, and a favorable decision to that end is courteously solicited.

Respectfully submitted.



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APPENDIX

The claims on appeal read as follows:

1. (original) A coated glass article comprising:

(a) a glass substrate;

(b) a coating of antimony doped tin oxide deposited on and adhering to said glass substrate; and

(c) a coating of fluorine doped tin oxide deposited on and adhering to said coating of antimony doped tin oxide,

with the thickness of said coatings selected so that said coated glass article exhibits a difference between visible light transmittance (Illuminant C) and total solar energy transmittance, integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, to provide a selectivity of 13 or more.

2. (original) The coated glass article of claim 1, wherein said coating of antimony doped tin oxide has a thickness of between about 1400 and 2400 angstroms.

3. (original) The coated glass article of claim 2, wherein said coating of antimony doped tin oxide has a thickness of between about 1400 and 1900 angstroms.

4. (original) The coated glass article of claim 3, wherein said coating of

antimony doped tin oxide is about 1700 to about 1800 Angstroms thick.

5. (previously presented) The coated glass article of claim 1, wherein said coating of fluorine doped tin oxide has a thickness of between about 2000 and 3500 angstroms.

6. (previously presented) The coated glass article of claim 5, wherein said coating of fluorine doped tin oxide has a thickness of between about 2200 and 3500 angstroms.

7. (original) The coated glass article of claim 6, wherein said coating of fluorine doped tin oxide is about 2800 to about 3200 Angstroms thick.

8. (original) The coated glass article of claim 1, wherein said coated glass article has an emittance less than or equal to about 0.2.

9. (original) The coated glass article of claim 8, wherein said coated glass article has an emittance less than or equal to about 0.15.

10. (original) The coated glass article of claim 1, wherein said glass substrate is a clear float glass ribbon.

11. (original) The coated glass article of claim 1, wherein said article exhibits a neutral color in glass side reflectance as defined in the CIELAB system having an a* value from about 0 to about -6 and a b* value of about 0 to about -6.

12. (original) The coated glass article of claim 1, wherein the molar ratio of antimony to tin in the antimony doped tin oxide coating is between about 0.05 and 0.12.

13. (original) The coated glass article of claim 1, wherein said coated glass article exhibits a visible light transmittance (Illuminant C) of 63% or more and a total solar energy transmittance integrated with an air mass 1.5 of 53% or less on a clear glass substrate at a nominal 3 mm thickness.

14. (original) The coated glass article of claim 1, wherein said coated glass article exhibits a visible light transmittance (Illuminant C) of 59% or more and a total solar energy transmittance integrated with an air mass 1.5 of 49% or less on a clear glass substrate at a nominal 3mm thickness.

15. (original) An insulating glass unit for architectural windows, including a coated glass article as defined in claim 1.

16. (original) The insulating glass unit of claim 15, wherein said insulated glass unit has a U value less than 0.4.

17. (original) The coated glass article of claim 1, further comprising an iridescence-suppressing interlayer between said glass substrate and said coating of antimony doped tin oxide.

18. (original) The coated glass article of claim 17, wherein said coated glass article has a visible light transmittance (Illuminant C) of 63% or more and a total solar energy transmittance integrated with an air mass 1.5 of 53% or less on a clear glass substrate at a nominal 3 mm thickness, and exhibits a neutral color in glass side reflectance as defined in the CIELAB system having an a* value from about 0 to about -6 and a b* value of about 0 to about -6.

19. (original) The coated glass article of claim 17, wherein said iridescence suppressing interlayer comprises a layer of undoped tin oxide, and deposited on and adhering to said layer of undoped tin oxide, a layer of silica.

20. (original) The coated glass article of claim 19, wherein the total optical thickness of said undoped tin oxide layer and said silica layer is from 1/6th to 1/12th of a 500nm design wavelength.

21. (original) The coated glass article of claim 19, wherein said undoped tin oxide layer has a thickness of between about 150-350 angstroms, and said silica layer has a thickness of between about 150-350 angstroms.

22. (original) An insulating glass unit comprising:

(a) a first glass substrate;

(b) a second glass substrate having an inner surface and an outer surface, said second glass substrate being secured to said first glass substrate in a spaced apart relationship with said inner surface facing said first glass substrate; and

(c) a multilayer coating stack deposited on and adhered to said inner surface of said second glass substrate, said multilayer coating stack comprising:

(i) a coating of antimony doped tin oxide deposited on and adhering to said inner surface, said coating of antimony doped tin oxide having a thickness of between about 1400 and 1900 Angstroms; and

(ii) a coating of fluorine doped tin oxide deposited on and adhering to said coating of antimony doped tin oxide, said coating of fluorine doped tin oxide having a thickness of between about 2200 and 3500 Angstroms;

said multilayer coating being such that said second glass substrate exhibits a difference between visible light transmittance (Illuminant C) and total solar energy transmittance,

integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, of 13 or more.

23. (original) The insulating glass unit of claim 22, wherein said insulating glass unit has a U value less than 0.4.

24. (original) The insulating glass unit of claim 22, wherein said insulating glass unit has a U value which is at least 15% less than the U Value of an insulating glass unit of the same construction but utilizing two panes of uncoated glass.

25. (original) The insulating glass unit of claim 22, wherein the total solar energy transmittance is at least 25% less than the total solar energy transmittance of an insulating glass unit of the same construction but utilizing two panes of uncoated glass.

26. (original) A coated glass article comprising:

(a) a glass substrate;

(b) a coating of antimony doped tin oxide deposited on and adhering to said glass substrate, said coating of antimony doped tin oxide having a thickness of between about 1400 and 1900 Angstroms; and

(c) a coating of fluorine doped tin oxide deposited on and adhering to said coating of antimony doped tin oxide, said coating of fluorine doped tin oxide having a thickness of

between about 2200 and 3500 Angstroms;

said coated glass article exhibiting a difference between visible light transmittance (Illuminant C) and total solar energy transmittance, integrated with an air mass 1.5 on a clear glass substrate at a nominal 3 mm thickness, to provide a selectivity of 13 or more.

27. (original) The coated glass article of claim 26, wherein said coated glass article has an emittance less than or equal to about 0.15.

28. (original) The coated glass article of claim 26, wherein said article exhibits a neutral color in glass side reflectance as defined in the CIELAB system having an a* value from about 0 to about -6 and a b* value of about 0 to about -6.

AF 1774 DW

PTO/SB/21 (02-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/625,921
Filing Date	July 26, 2000
First Named Inventor	David A. Strickler
Art Unit	1774
Examiner Name	Tamra Dicus
Attorney Docket Number	1-14455

Total Number of Pages in This Submission: 27

ENCLOSURES *(Check all that apply)*

- [✓] Fee Transmittal Form
  - [✓] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Technology Center (TC)
- [ ] Appeal Communication to Board of Appeals and Interferences
- [✓] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [✓] Other Enclosure(s) (please Identify below):
  - Return Postcard
  - Check

Remarks

1 original Appeal Brief and 2 copies

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	MARSHALL & MELHORN, LLC. Mark A. Hixon, Reg. No. 44,766
Signature	
Date	August 24, 2004

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Roberta A. Winzeler		
Signature	Roberta A. Winzeler	Date	8/24/04

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330.00

Complete if Known	
Application Number	09/625,921
Filing Date	July 26, 2000
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Art Unit	1774
Attorney Docket No.	1-14455

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: MARSHALL & MELHORN, LLC.

Deposit Account Name: 13-1816

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X	=
Independent Claims		- 3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330.00

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Mark A. Hixon	*Registration No. (Attorney/Agent)*	44,766	*Telephone*	419-249-7100
Signature				*Date*	August 24, 2004

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